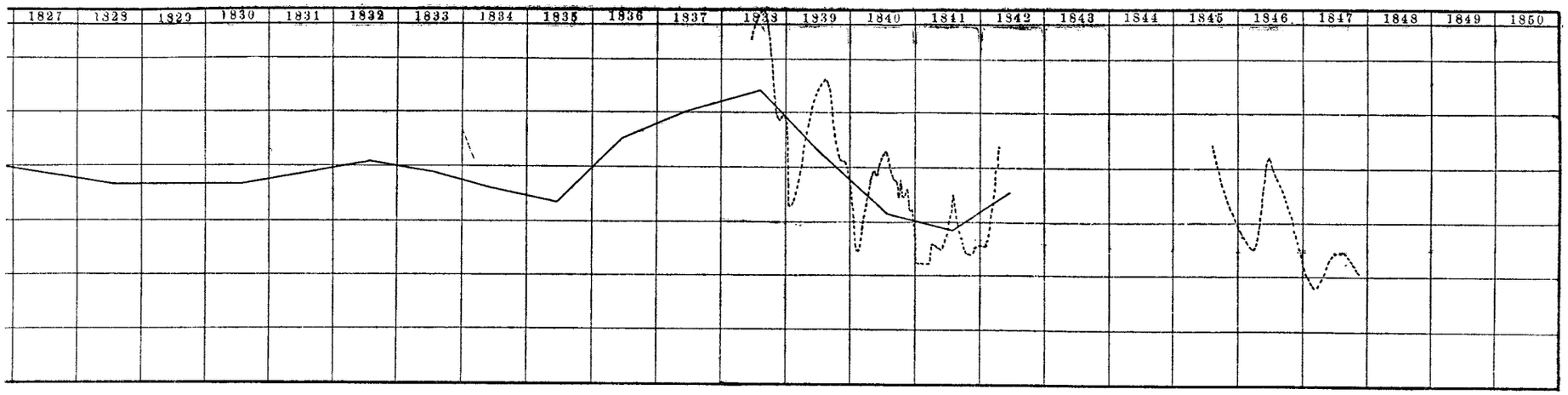
GEOLOGICAL COLUMN IN HURON COUNTY.

(Adapted so far as possible to a well 2270 feet deep at Caseville and one 1920 feet deep at Harbor Beach.)

CORRELATIONS.	NAMES.			TYPICAL EXPOSURES.	LITHOLOGICAL CHARACTER.	NOTES.
			PLEISTOCENE	Port Crescent White Rock Ubly	Lake sands, lake clays and till	Section very different in different localities. For fossils of shell marls see Chapter X
		JACKSON COAL MEASURES		Sebewaing coal mines and shafts	Black, white and blue shales, coal and sandstone	Distance from coal measures to Napoleon given by wells which start in Maxville limestone and run into it. *e. g.*, on Sec. 36, T. 17 N., R. 9 E., sandstone at 264′; Sec. 31, T. 17 N., R. 10 E. at 270′
CARBONIFEROUS AND LOWER KASKASKIA AND UPPER CONGLOMERATE	KRONKUK AND HURLINGTON	GRAND RAPIDS — Maxville		Bayport Shebeon Charity islands	Sandy yellow limestones, crossbedded white sandstone, little dolomite	*Lithostrotion canadense, L. proliferum, Allorisma clavata, A. elongata, Syringopora ramulosa, Spiriferina spinosa, Seminula argentea, Phillipsia longispina*
					Light grey shale with gypsum and pyrite; salty blueish shales; argillaceous hydraulic limestones	Macpherson's well, Sec. 30, T. 17 N., R. 11 E., strikes bedrock at 40′, but has no good water until 210′, in white sandstone Leipprandt's well, Sec. 13, T. 17 N., R. 10 E.; gypsum at 55′ and 100′, Napoleon white sandstone at 228′ Sec. 25, T. 17 N., R 9 E., plaster at 10′ to 25′, flow at 140′ Gypsum is 155′ above top of Napoleon at Midland, 110′ at Alma, 140′ at Bay City
		GRAND RAPIDS — Michigan		Soule Sec.24, T. 17 N., R. 11 E. Sec.19, T. 17 N., R. 12 E.	Blue to black micaceous shales	*Spirifer forbesi?, Productella arcuata?*
				Oak Point	Limestone	*Spirifer marionensis? Spiriferina spinosa?*
		GRAND RAPIDS — Napoleon			Clean white sandstone, sometimes with an olive tint or brown from specks of pyrite	Top of Napoleon at Caseville 1750—120=1630′ above base of Berea grit Lonsberry's well, Sec. 3, T. 17 N., R. 11 E.
Herrick's conglomerate II? Upper Logan				Rush Lake Babbitt sandstone quarry		No fossils yet known, almost a glass sand
		MARSHALL		Hat Point Learned's hill Sec.31, T. 19 N., R. 13 E.		Depth of base of Napoleon below top by comparison of wells is—337′=(1750—120 at Caseville)—(1225+68) at Port Austin *Goniatites marshallensis, Solen quadrangularis, Leiopteria ortoni, Ctenodonta hubbardi, Myalina michiganensis, Microdon reservatus*
Herrick's conglomerate II?	KINDERHOOK	EOCARBONIFEROUS — Lower Marshall		Hardwood Point Flat Rock Port Austin	Flags and sandstones, green weathering red, with beds of blue micaceous shale white sandstone, nodules of iron carbonate, and thin seams of "peanut" conglomerate	Port Crescent well below top of Napoleon, 380′=1630—1250 Skein well below top of Napoleon, 405′=1630—1225 *Camarotœchia camerifera* Carrington well, Port Austin, top of Napoleon, 432=1630—1198
				Point Aux Barques		
Middle Waverly or Lower Logan				Sec.26, T. 19 N., R. 13 E. Sec.17, T. 18 N., R. 14 E. *R. Julia* zone		*Romingerina julia, Camarotœchia camerifera, Goniatites oweni, G. lyoni, Nuculana bellistriata, 3 sp. Orthoceras, 3 of crinoids, Melonites*
				Grindstone quarries Coast Sec.30, T. 19 N., R. 14 E.		Grindstone City well below top of Marshall 550′=1630—1080 *Microdon reservatus* Well begins (1630—560=1070)—1029=41′ below base of Marshall
				New River well Willow River		
				Sec 2 and Sec 3, Huron		*Spirifer deltoideus, S. huronensis, Syringothyris pharovicina, Eumetria? polypleura, Aviculopecten areolatus, Schizodus triangularis, Prothyris meeki, Sanguinolites aeolus, S. michiganensis, S. borealis, Proetus missouriensis, Rhipidomella vanuxemi pulchella, Orthoceras barquianum, Pleurotomaria huronensis, Sphenotus valvulus*
Herrick's conglomerate I Raccoon or Waverly shales				Light house conglomerate		
				Port Hope Diamond Creek	Blue shales, with sandy streaks, often ripple-marked, frequently charged with carbonate of iron	Port Hope well begins 1070—787=283′ below base of Marshall *Chonetes scitulus (cf. pulchella Win.)*, abundant from here along the coast to White Rock township
				Harbor Beach		Well begins 1070—664=406′ or (1680—603 to 633—680) 397′ to 367′ below base of Marshall
Moot's Run		COLDWATER		Rock Falls		*Chonetes scitulus, Conularia gracilis, Phœthonides spinosus, Streblopteria media, Productus lævicosta, P. newberryi annosus, Productella shumardana Spirifer centronatus*
Cuyahoga shales				White Rock well Sec.19, T. 15 N., R. 16 E.		
				Forestville	Thickness of Coldwater from base of Marshall to top of Berea shale, 896′ (Harbor Beach), 845′+ (New River), 965?′ Port Austin, 816′ (Port Hope)	

Rest of column not exposed

BUENA VISTA FLAGS			
BEREA SHALE	103 feet (Harbor Beach)	Top, 999′ Bottom, 1061′ Harbor Beach, 1000′ 1055′ White Rock, 1020′ 1060′ Forestville, below the base of the Marshall	
BEREA GRIT	75 feet		
BEDFORD SHALE	50 feet		
CLEVELAND SHALE			
ERIE SHALE	OHIO OR SAINT CLAIR 3 feet	From base of Berea grit to top of Traverse (1120—664) 456 to (2270—1750 Caseville) 520 feet	
HURON SHALE	133 feet		
HAMILTON	270 feet	15 feet very hard limestone at 1400′, compare Alpena at 153′ and Bay City at 2910 feet, Encrinal limestone?	
MARCELLUS	TRAVERSE 605		
CORNIFEROUS	DUNDEE, 119	95′ more to bottom of Harbor Beach, well strong bitterns; see analyses	
SALINA	MONROE 2,000?	Unexplored	
NIAGARA	400?		
CLINTON TO UTICA SHALES	750?	Total to Trenton from base of Marshall, about 5000 feet	
TRENTON		Total to Trenton from base of coal measures, about 5800 feet	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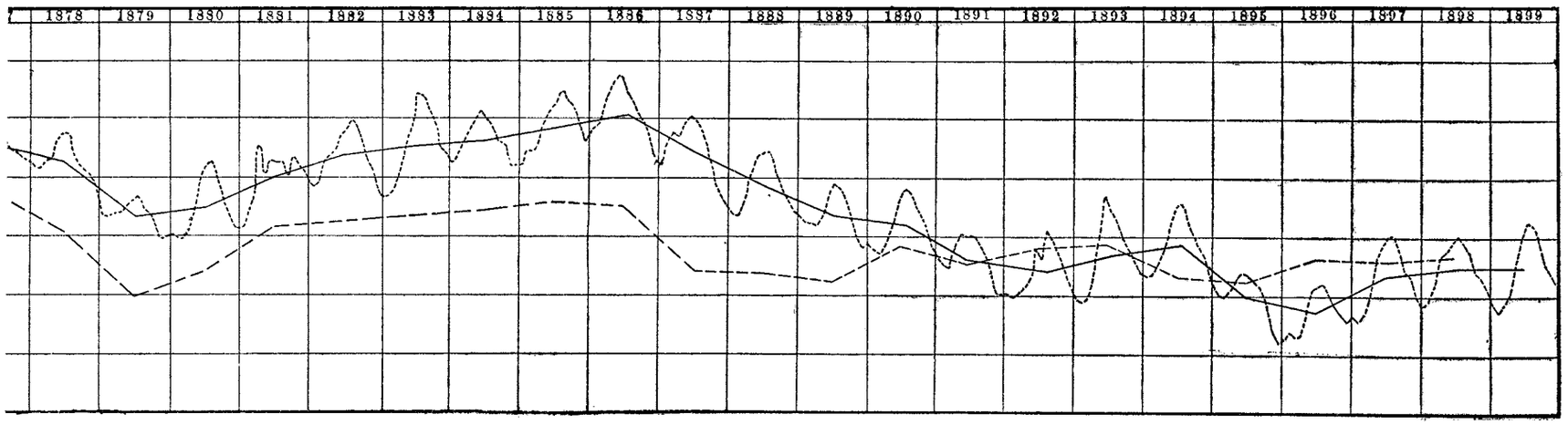
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